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**MEASURING LABILE VALUES:  
PROBLEMS IN THE ELICITATION OF POORLY-  
FORMULATED PREFERENCES**

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**DECISION RESEARCH** A BRANCH OF PERCEPTONICS

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## SUMMARY

Decision making requires two sequential actions: Assessing what one wants and, then, figuring out what one can get. Considerable research has gone into improving our ability to carry out the second of these acts through the design of sophisticated decision models and calculation procedures and through the study of people's ability to make the required judgments of fact. It has been found, for example, that people are prone to systematic biases in the judgments of probabilistic events, biases which limit the validity of analyses and call for remedial procedures.

Typically, however, it has been presumed that people know what they want and that with a little care, those values can be elicited. Furthermore, those values are sufficiently well developed to be elicited in whatever form is most convenient for the elicitor (opinion surveyor, decision analyst, etc.). Research reviewed here suggests that this may not be the case and that a fundamental change may be called for in the way we study and elicit values.

When faced with complex, unfamiliar issues, people may have poorly formulated, even incoherent, values. In such situations, where people do not know what they want, the values they express may be highly labile. Subtle changes in how issues are posed, questions are phrased and responses are elicited can have marked effects on people's expressed preferences. That is, the method may be part of the message (the reported value).

Formal decision making methods have no way of accommodating these effects, that is, deciding which of a pair of contradictory expressed values is to be believed. However, confronting these effects is unavoidable if we are to elicit values at all. If one is interested in what an individual really feels about a values issue, there may be no substitute for an



interactive elicitation procedure which acknowledges the elicitor's role in helping the respondent to create and enunciate values. There is, however, no guarantee that even the greatest of care will resolve fundamental inconsistencies in values. It may, at times, be necessary to acknowledge that we do not know what we want and structure our actions accordingly.

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## 1. INTRODUCTION

An article of faith among students of value, choice and attitude judgments is that people have reasonably well-defined opinions regarding the desirability of various events. Although these opinions may not be intuitively formulated in numerical (or even verbal) form, careful questioning can elicit judgments representing people's underlying values. From this stance elicitation procedures are neutral tools, bias-free channels which translate subjective feelings into scientifically usable expressions. They impose no views on respondents, beyond focusing attention on those value issues of interest to the investigator.

What happens, however, in cases where people do not know, or have difficulty appraising, what they want? Under such circumstances elicitation procedures may become major forces in shaping the values expressed, or apparently expressed, in the judgments they require. They can induce random error (by confusing the respondent), systematic error (by hinting at what the "correct" response is), or unduly extreme judgments (by suggesting clarity and coherence of opinion that are not warranted). In such cases, the method becomes the message. If elicited values are used as guides for future behavior, they may lead to decisions not in the decision maker's best interest, to action when caution is desirable (or the opposite) or to the obfuscation of poorly formulated views needing careful development and clarification.

The topic of this paper is the confrontation between those who hold (possibly inchoate) values and those who elicit values. By "values," we mean evaluative judgments regarding the relative or absolute worth or desirability of possible events. Such events may be general (being honest) or specific (winning a particular lottery). Their consequences (or outcomes) may have one or many salient attributes and may be



certainties or possibilities. Such a broad definition captures just about any task ever included under the topics of value, choice or preference, as well as many that would fit comfortably under attitudes, opinions, and decision making. Our discussion is limited to situations in which people are reporting their values as honestly as possible; the further complication of measuring values in the face of strategic behavior is not considered.

The recurrent theme of this paper is that subtle aspects of how problems are posed, questions are phrased and responses are elicited can have substantial impact on judgments that supposedly express people's true values. Furthermore, such lability in expressed preferences is unavoidable: questions must be posed in some manner and that manner may have a large effect on the responses elicited. Pursuit of the issues raised here can at best alert elicitor and respondent to such impacts, making these effects deliberate rather than covert.

One might hope that such analysis would identify the "right" way to ask about values. To foreshadow our conclusions, we believe that the quest for a right way is, at times, ill-founded. While there are some obvious pitfalls to avoid, instability is often inherent in our values. Rather than trying to circumvent such lability, we should try to exploit the insight it provides into the nature of values, and their formation, change and application.

#### 1.1 When and How People Might Not Know What They Want

People are most likely to have clear preferences regarding issues that are familiar, simple and directly experienced. Each of these properties is associated with opportunities for trial-and-error learning, particularly

such learning as may be summarized in readily applicable rules or homilies.<sup>1</sup> Those rules provide stereotypic, readily justifiable responses to future questions of values. When adopted by individuals, they may be seen as habits; when adopted by groups, they constitute traditions.

The acceptability and perceived validity of such adages as "honesty is the best policy" and "cleanliness is next to godliness" is to some extent appropriate. As guides to living, they have been subjected to some empirical testing (being clean either has or has not brought satisfaction to oneself, one's neighbors, one's ancestors). They are often derived and formulated to be coherent with a wider body of beliefs and values. And they are readily applicable, both because of their simplicity and because the individual has had practice in working through their implications for various situations. Such facility should help to guarantee that people will give similar answers (regarding, say, the importance of cleanliness), expressing the same underlying views, regardless of how the question is posed.

The power of these rules of thumb comes from their development and application to the settings found in a simple and unchanging society with repetitive problems.<sup>2</sup> Their viability becomes quite suspect in a world

---

<sup>1</sup> These are, incidentally, conditions quite similar to those cited by Nisbett and Bellows (1977) as necessary for valid introspection.

<sup>2</sup> However, one shouldn't tout folk or personal wisdom too highly. Even in those settings, people comfortably hold contradictory adages ("Nothing ventured, nothing gained" and "Fools rush in where wise men fear to tread"). The testing procedures for validating such wisdom leaves much to be desired. People may not realize when experience provides a test for their well-worn rules and may not remember their experiences properly when they do consider validity. They may forget a rule's failures and remember its successes or vice versa. Finally, the translation of subjective feelings to observable judgments has an unavoidable error component due to inattention, distraction, laziness and mistakes. Such error can introduce enough slippage into the opinion evaluation and formulation process to make clarity somewhat difficult.



where the issues are unfamiliar and complex, the old intuitions impotent, the old rules untested and perhaps untestable.

Today we are asked to take responsibility for choosing a mate, a job, a family size, for guiding social policy and for adopting or rejecting new technologies. Each of these issues confronts us with greater freedom of choice and more lasting consequences than ever before. They take us into situations for which we have never thought through the implications of the values and beliefs acquired in simpler settings. We may be unfamiliar with the terms in which issues are formulated (e.g., social discount rates, miniscule probabilities, or megadeaths). We may have contradictory values (e.g., a desire to avoid catastrophic losses and a realization that we're not more moved by a plane crash with 500 fatalities than by one with 300). We may occupy different roles in life (parents, workers, children) which produce clear-cut, but inconsistent values. We may vacillate between incompatible, but strongly held, positions (e.g., freedom of speech is inviolate, but should be denied to authoritarian movements). We may not even know how to begin thinking about some issues (e.g., the appropriate tradeoff between the opportunity to dye one's hair and a vague, minute increase in the probability of cancer 20 years from now). Our views may undergo predictable changes over time (say, as the hour of decision approaches) and we may not know which view should form the basis of our decision. We may see things differently in theory than in the flesh. We may lack the mental capacity to think through the issues reliably and therefore come up with different conclusions each time we consider an issue.

One possible partition of the psychological states that might accompany not knowing what we want appears in Table 1. Perhaps the most dangerous condition is the first, having no opinion and not realizing it. In that state, we may respond with the first thing that comes to mind once a

TABLE 1

PSYCHOLOGICAL STATES ASSOCIATED WITH NOT  
KNOWING WHAT YOU WANT

HAVING NO OPINION

Not Realizing It

Realizing It

Living Without One

Trying to Form One

HAVING AN INCOHERENT OPINION

Not Realizing It

Realizing It

Living With Incoherence

Trying to Form a Coherent Opinion

HAVING A COHERENT OPINION

Accessing It Properly

Accessing Only a Part of It

Accessing Something Else



question is asked. As a defense against uncertainty, we may then commit ourselves to maintaining that first expression and to mustering support for it, suppressing other views and uncertainties. We may then be stuck with stereotypic or associative responses reflecting immediate stimulus configurations rather than serious contemplation. Perhaps the most painful state is to acknowledge having incoherent or conflicted values requiring further analysis.

The states described in Table 1 are determined in part by the actual state of our values and in part by how we assess them in a particular situation. The critical elements of that assessment would seem to be (a) our need for closure, itself a function of the importance of the issue at hand, the need to act and the audience for our judgments, (b) the depth of the analysis, determined by the thoroughness of the elicitation procedure and our general familiarity with the issue at hand, and (c) our awareness of the problems raised in this paper, i.e., the possibility of not knowing what we want and the power of the elicitor to tell (or hint) to us what our values are.

## 1.2 Psychophysics of Value

Finding that judgments are influenced by unintended aspects of experimental procedure and that those influences are worthy of study is an oft-told tale in the history of psychology. Indeed, McGuire (1969b) describes much of that history as the process by which one scientist's artifact becomes another's main effect. Central to this process is the recognition that the effective stimulus cannot be presumed but must be discovered (Boring, 1969). A selective survey of this history appears in Table 2.<sup>3</sup>

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<sup>3</sup>No attempt will be made to document this incomplete list drawn from various parts of the lore of psychology. Useful references include Carterette & Friedman (1974), Galanter (1974), Helson (1964), Kling & Riggs (1971), Marks (1974), Parducci (1974), Posner (1973), Poulton (1968), Rosenthal & Rosnow (1969), Upshaw (1974) and Woodward & Schlosberg (1954).

TABLE 2  
FROM ARTIFACT TO MAIN EFFECT

LABILITY IN JUDGMENT DUE TO ORGANISM	LED TO
Inattention, Laziness, Fatigue	Repeated Measures
Habituation, Learning, Maturation, Physiological Limitations	Professional Subjects
Natural Rhythms, Experience With Related Tasks	Stochastic Response Models
	Psychophysiology
	Proactive and Retroactive Inhibition Research
STIMULUS PRESENTATION	
Homogeneity of Alternatives,	Classical Psychophysical Methods
Similarity of Successive Alternatives (Especially First and Second), Speed of Presentation,	The New Psychophysics
Amount of Information, Range of Alternatives, Place in Range of First Alternative, Distance From Threshold, Order of Presentation, Areal Extent,	Attention Research
Ascending or Descending Series	Range Frequency Theory
	Order Effects Research
	Regression Effects
	Anticipation



TABLE 2 (CONTINUED)

RESPONSE MODE

Stimulus-Response Compatibility,	Ergonomics Research
Naturalness of Response, Set,	Set Research
Number of Categories, Halo	Attitude Measurement
Effects, Anchoring, Very Small	Assessment Techniques
Numbers, Response Category	Contrasts of Between & Within
Labeling, Use of End Points	Subject Design
	Response Bias Research
	Use of Blank Trials

"IRRELEVANT" CONTEXT EFFECTS

Perceptual Defenses, Experi-	New Look in Perception
menter Cues, Social Pressures,	Verbal Conditioning
Presuppositions, Implicit Pay-	Experimenter Demand
offs, Social Desirability,	Signal Detection Theory
Confusing Instructions, Response	Social Pressure, Comparison
Norms, Response Priming, Stereo-	and Facilitation Research
typic Responses, Second-Guessing	

While no attempt has been made at more elaborate categorization of these variables, perhaps the critical factor for experimental design has been whether an effect leads to random or systematic variations in the observed judgments. Recognition of systematic effects is, of course, most productive, leading to the identification of basic psychological principles (e.g., the psychological refractory period uncovered by varying speed of stimulus presentation) or theories (e.g., range-frequency theory derived from effects caused by varying the range and homogeneity of presented stimuli) or design principles (e.g., counterbalancing for situations in which order effects have been observed). The discovery of variables producing random error typically allows little response other than estimation of the size of the effect and the sample size needed to obtain desired statistical power. Although at times noise-reduction techniques may be available (e.g., testing in the morning or providing payment for accuracy), they are usually undertaken with some trepidation for fear of turning a large random error into a smaller systematic one and creating a task very unrepresentative of its real-world analog.

We cite these effects for several reasons. One is because many of them seem to be as endemic to judgments of value as they are to the judgmental context in which they were originally observed. Parducci (1974), for example, has found that judged satisfaction with one's state in life may depend highly on the range of states considered. According to Turner and Krauss (1978), order of question presentation in surveys has had marked effects on people's evaluation of the state of the nation and its institutions. Lichtenstein and Slovic (1973) found that the judged attractiveness of casino gambles is greatly affected by stimulus-response compatibility. The second reason the effects are cited is to set the stage for the following discussion of effects more specific to the judgment of values. Like the phenomena in Table 2, these effects may be considered as today's artifacts on the way to becoming tomorrow's independent variables. The



third reason is to foreswear any pretense of trying to create a scientific revolution. The pattern we are following is a hoary and respected one in the history of psychology: collecting and sorting a variety of documented and suspected sources of lability in a particular form of judgment. By bringing together such a diverse collection of effects we hope to (a) facilitate an appreciation of the extent to which people's apparent values are determined by the elicitor, (b) provide a tentative organization of effects and the contexts in which they may arise, and (c) explicate the implications of these results for various areas in basic and applied psychology.

### 1.3 Overview

If, as Rokeach (1973) claims, people have relatively few basic values, producing an answer to a specific value question is largely an exercise in inference. We must decide which of our values are relevant to that situation, how they are to be interpreted, and what weight each is to be given. This inferential process is determined in part by how the question is defined and in part by which perspectives we invoke in solving the inferential problem it poses. Once we have reached a summary judgment, we must decide how strongly we believe in it and in the perspectives upon which it is based.

As outlined in Table 3, the following three sections describe how an elicitor can affect the expression of formulation of values by controlling the definition of problems, the recruitment and integration of perspectives, and the confidence placed in the result of the inferential process. That control may be overt or covert, deliberate or inadvertent, reversible or irreversible. A fourth section is devoted to the topic of irreversible effects whereby the respondent is actually changed by the elicitation process, through having existing perspectives destroyed or new ones created.

TABLE 3

WAYS THAT AN ELICITOR MAY AFFECT  
A RESPONDENT'S JUDGMENTS OF VALUE

DEFINING THE ISSUE

- Is There a Problem?
- What Options and Consequences are Relevant?
- How Should Options and Consequences Be Labeled?
- How Should Values Be Measured?
- Should the Problem Be Decomposed?

CONTROLLING THE RESPONDENT'S PERSPECTIVES

- Altering the Salience of Perspectives
- Altering the Importance of Perspectives
- Choosing the Time of Inquiry

CHANGING CONFIDENCE IN EXPRESSED VALUES

- Misattributing the Source
- Changing the Apparent Degree of Coherence

CHANGING THE RESPONDENT

- Destroying Existing Perspectives
- Creating Perspective
- Deepening Perspectives



The notion of an external elicitor is used mainly as a syntactical device to avoid unclear antecedents. Questions of value must be posed in some way. If an external elicitor does not pose them for us, then we must pose them for ourselves (if only by accepting some "natural" formulation offered by our environment). Indeed, the power of the effects described here may be magnified when we pose problems to ourselves, unless we direct at our own questions the same critical eye that we turn to someone else asking us about our values.

## 2. DEFINING THE ISSUE

### 2.1 Is There a Problem?

Before a question of value can be posed, someone must decide that there is something to question. In this fundamental way, the elicitor impinges on the respondent's values. By asking about the desirability of pre-marital sex, interracial dating, daily prayer, freedom of expression or the fall of capitalism, the elicitor may legitimize events that were previously viewed as unacceptable or cast doubts on events that were previously unquestioned. Opinion polls help set our national agenda by the questions they do and do not ask. Advertising helps set our personal agendas by the questions it induces us to ask ourselves (two door or four door?) and those it takes for granted (more is better).

### 2.2 What Options and Consequences are Relevant?

Once a question has been broached, its scope must be specified. Bounds must be placed on the options and consequences to be considered. The lore of survey research is replete with evidence regarding the subtle ways in which these bounds can be controlled by the elicitor's demeanor and the implicit assumptions and presumptions in the phrasing of questions (Payne, 1952). There are, it seems, many ways to communicate to a respondent (a) whether the set of possible options is restricted to the named, the feasible, the popular, or the legal, (b) whether new options may be created, and (c) whether the question may be rejected out of hand. The set of relevant consequences may also be shaped to include or exclude intangible consequences (those without readily available dollar equivalents), ethical (versus efficiency) issues, social (versus personal) impacts, secondary and tertiary consequences, means (versus ends), and the well being of nature (versus that of humans). Control may be



inadvertent as well as deliberate. For example, what may seem to the elicitor to be irrelevant and dominated alternatives, sensibly deleted for the sake of simplicity, may provide important contextual information for the respondent.

A tempting solution for the elicitor would be to specify the problem as little as possible, leaving respondents to define the sets of option and consequence sets as they see fit. Unfortunately, this approach increases the probability that the elicitor and respondent will be talking about different things without solving the problem of inadvertent control. Indeed, one might even argue that impassive elicitation is the most manipulative of all. For it means that the entire questioning experience is conducted under the influence of the unanalyzed predispositions and presumptions of the elicitor without even a courtesy warning to the respondent, "Here are my prejudices, let's try to be wary of them." (Rosenthal & Rosnow, 1969). There is no reason to believe that people will be spontaneously aware of what has been left out but not brought to their attention (Fischhoff, 1977a; Fischhoff, Slovic & Lichtenstein, 1978; Lovins, 1977; Nisbett & Wilson, 1977; Tribe, Schelling & Voss, 1976).

### 2.3 How Should Options and Consequences Be Labeled

The elicitor's influence on the definition of options and consequences does not end with their enumeration. Once the concepts have been evoked, they must be given labels. As Marks (1977) suggests, in a world with few hard evaluative standards, such symbolic interpretations may be very important. While the facts of abortion remain constant, individuals may vacillate in their attitude as they attach and detach the label of "murder." The value of a dollar may change greatly if it is called "discretionary funds," "public funds," or "widows' and orphans' funds."

Political scientists have been accused of ideologically biasing their research by describing acts, options and outcomes with terms drawn from neo-classical economics with its particular (mostly conservative) political bias (Ashcraft, 1977). More generally, Karl Mannheim (1936) observed that "the political theorist's...most general mode of thought including even his categories is bound up with general political and social undercurrents...extend[ing] even into the realm of logic itself" (p. 117). Presumably, political scientists' choice of language imposes that perspective on respondents to their surveys and readers of their texts.

While not new, these issues are still troublesome. Furthermore, they cannot be avoided, for some meaning must be given to events, and the meaning generated by the respondent may be even less appropriate than that imposed by the elicitor (Poulton, 1977). When the respondent sees the validity of contradictory symbolic meanings (e.g., abortion both is and is not murder), conflict in meaning cannot be resolved. In such cases, the only recourse is to step back, somehow, and decide on exogenous grounds just what this elicitation session is all about. If necessary, that longer look should come sooner rather than later. Often, changes in perspective are irreversible (Fischhoff, 1977b). The psychological impact of an offered interpretation may not be rescindable (try to forget that "this is what I, your mother, want you to do, but decide for yourself" or that "this is your childhood sweetheart's favorite restaurant").

#### 2.4 How Should Values Be Measured?

After the problem has been structured, the units of measurement must be chosen. It is not difficult to construct options whose relative desirability is changed when the evaluation criterion undergoes any of the following shifts: (a) from profit to regret, (b) from maximizing to



satisficing: (c) from the fair price to the price I'd pay, (d) from final asset position to changes in asset position, (e) from the price I'd pay to avoid a malady to the price I'd have to be paid to accept it, (f) from lives saved to lives lost, and (g) from the ratio of benefits to costs to the difference between benefits and costs.<sup>4</sup> As before, choice of units may be specified by the elicitor or left to that nether region created by the "neutral" stance of non-specification.

Moreover, the size of the unit chosen may affect the responses. Unless some help is provided to the respondent (say, through the use of anchors or logarithmic scales), it may be very difficult to express values that range over several orders of magnitude for a given set of stimuli because people find it hard to use either very small or very large numbers (Poulton, 1968).

## 2.5 Should The Problem Be Decomposed?

Many (or most) interesting questions of value are subtle, complex and multifaceted, with intricate interrelations and consequences. The elicitor must choose between presenting the event to be evaluated as a whole or offering some kind of decomposition. Offering an unanalyzed whole incurs the risk that the respondent will latch on to a single aspect of the problem or treat all aspects superficially, so as to minimize cognitive strain.

Unfortunately, the act of decomposition has consequences besides clarification. One charge leveled against divide-and-conquer strategies is that

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<sup>4</sup> Kahneman and Tversky (in press) provide the most extensive and insightful discussion of the power of shifts in point of reference, the principle underlying many of these effects.

they destroy the intuitions of the respondent (Dreyfus & Dreyfus, n.d.). Drawing on the work of Gestalt psychologists and Polanyi (e.g., 1962), these critics argue that people think most naturally and adequately by analogy with past experiences and that all such thought (regarding issues of fact or value) is context dependent. Therefore, any attempt to evaluate separately the attributes of a particular event or designate the importance of attributes in the abstract is likely to produce spurious results. In addition to destroying the respondent's natural understanding, decomposition procedures may impose a response mode that does not allow people to articulate their understanding of (holistic) value issues.<sup>5</sup>

Furthermore, decompositions are not unique; different cuts may lead to different judgments of the same issue. Sequential evaluation of alternatives has been found to produce different preferences than simultaneous evaluation (Tversky, 1969). Plott and Levine (1978) have shown that the order in which attributes are considered is a crucial variable in determining preference orderings. Some theories of choice (Aschenbrenner, 1978) predict shifts in the attractiveness of simple gambles as a function of their decomposition. Kahneman and Tversky (in press) demonstrated a variety of reversals in preference depending on whether prospects were considered as a whole or decomposed into two stages. The effective element here was isolating (in the first stage) one sub-outcome that was

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<sup>5</sup> If true, this criticism would attribute the greatest validity to elicitation procedures that leave options in their most natural form. For example, Hammond's social judgment theory approach (Hammond & Adelman, 1976) in which complete options are judged should be preferred to the Keeney and Raiffa (1976) procedure in which whole options are evaluated but only two attributes are varied at a time. That procedure, in turn, should be preferred to Edwards' (Gardiner & Edwards, 1975) SMART method that forces total decomposition. Ironically, Dreyfus and Dreyfus (n.d.) chose Hammond and Adelman (1976) as a case in point for the flaws of decomposition.



known for certain. Certain losses and gains are weighted more heavily than uncertain outcomes in determining overall attractiveness.

Finally, as Tribe has argued (1972), decomposition itself typically carries a message. It stresses ends over means. It proclaims the superiority of the elicitor's overall perspective (and the overall social importance of analysis and its purveyors, Gouldner, 1976). It conveys a message of analyzability or solvability where that may be inappropriate.

### 3. CONTROLLING THE RESPONDENT'S PERSEPECTIVE

#### 3.1 Altering the Salience of Perspectives

People solve problems, including the determination of their own values, with what comes to mind. The more detailed, exacting and creative their inferential process is, the more likely they are to think of all they know about a question. The briefer that process becomes, the more they will be controlled by the relative accessibility of various considerations. Accessibility may be related to importance, but it is also related to degree of associative priming, the order in which questions are posed, imaginability, concreteness and other factors only loosely related to importance.

One way in which the elicitor may unintentionally prime particular considerations is seen in Turner and Krauss' (1978) observation that people's confidence in national institutions was substantially higher in a National Opinion Research Center poll than in a Harris poll taken at the same time when the latter prefaced the confidence questions with six items relating to "political alienation." Another is Fischhoff, Slovic, Lichtenstein, Read and Combs' (1968) finding that people judged the risks associated with various technologies to be more acceptable following a judgment task concerning the benefits of those technologies than following a task dwelling on their risks. According to Wildavsky (1966), the very act of asking people for their own personal values may suppress the availability of social values. Indeed, one could speculate that, in general, when conflicting values are relevant to a particular issue, the priming or evocation of one will tend to suppress the accessibility of its counterpart.



Expressed values sometimes reflect the direct application of established rules. Consistency with past preferences is one such rule; cautiousness is another. Whether or not a rule is evoked will depend upon situational cues. As an example of a rule that needed to be evoked before it was used, we have found that most people will prefer a gamble with a .25 chance to lose \$200 (and a .75 chance to lose nothing) to a sure loss of \$50. However, when that sure loss is called an insurance premium, people will reverse their preferences and forego the \$50. For these people, insurance was an acceptable but initially inaccessible rule; without a specific prompt, the sure loss was not seen as a premium.

### 3.2 Altering the Importance of Perspectives

Once an ensemble of relevant values has been elicited, some order must be placed on them. This ordering or weighting may also fall under elicitor control. Such control is, in fact, what experimental demand characteristics are all about: unintentionally telling the subject how to think, what to look at and what is expected. The unintended impacts of elicitor expectancies show the power of inadvertent influence (Rosenthal, 1969). Although Rosenthal minimizes the importance of operant conditioning in such influence, it is not hard to imagine the impact of an incredulous "hmm" or a querulous "half as important?" on the behavior of a confused or uncertain respondent. Nor is it hard to imagine how the demeanor of the elicitor might encourage or discourage the weight given to intangible or non-western values. Canavan-Gumpert (1977) has shown how reward and criticism can shift people's attention between the costs and benefits involved with a particular event.

One unavoidable decision made by the elicitor that may have great influence on the values that emerge is choice of response mode. Lichtenstein and Slovic (1971, 1973; see also Lindman, 1971, and Grether & Plott, in

press) showed that people use different cognitive processes when evaluating the worth of gambles via a comparative mode ("Which would you rather play?") than they use when judging each gamble separately ("How much is playing each worth to you?"). The different processes triggered by the change in response mode lead people to rather awkward reversals of preference ("I prefer A, but attach a higher value to B"). One possible explanation of such reversals, based on related work by Tversky (1972) and Slovic (1975), is that people make choices by searching for rules or concepts that provide a good justification, that minimize the lingering doubts, and that can be defended no matter what outcome occurs (example: "Quality is more important than quantity"). Different response modes increase the importance of different rules. In the gambles example, A offered a higher probability of winning while B promised a greater payoff. Here the preference mode may have emphasized that "the stakes don't matter if you're not going to win anyway," while the bidding mode focused attention on the payoff.

Another effect peculiar to choice behavior was found by Slovic and Mac-Phillamy (1974), who observed that dimensions common to each alternative had greater influence on choices than did dimensions that were unique to a particular alternative. Interrogation of the respondents after the study indicated that most did not intend to give more weight to the common dimension and were unaware that they had done so.

### 3.3 Choosing the Time of Inquiry

People's values change over time, sometimes systematically, sometimes not. The point in time at which the elicitor chooses to impinge on the respondent will determine in part what the respondent says. Some changes are secular and relatively irreversible. A society and its members may become more or less predisposed to consider environmental values (Harblin, 1977) or equity issues or the rights of women as time goes on. The age



distribution in that society as a whole may be shifting, leading to a greater preponderance of young or old people with their characteristic perspectives. By waiting or by hastening, an elicitor has some power to create a different picture of people's expressed values.

Other changes over time, with varying degrees of predictability, are maturation, satiation, cumulative deprivation, increasing risk aversion as one approaches an event, mood changes with time of day, day of the week, or season of the year. Consider people who regularly take stock of the world late at night and whose existential decisions are colored by their depleted body state. Is that value to be trusted or should one rely on the way they value their lives at high noon on a bright spring day? Should an elicitor rely on an auto worker's opinion of the intrinsic satisfaction of assembly-line work on the bus Monday morning or while on holiday and refreshed? In a multiple-play experiment on insurance-buying behavior (Slovic, Fischhoff, Lichtenstein, Corrigan & Combs, 1977), we found that participants who were generally risk seeking shifted to risk aversion on the final round (just before cashing out). Which attitude should we say characterized them? Or might not both of these perspectives be part of the individual's value system?

Any gap in time between judgment of an event and its occurrence may introduce an element of random or systematic variation in people's judgment. Hypothetical judgments of what an event would be like may not capture how it will look in the flesh. The contrast between the limited funds budgeted for rescue operations and disaster relief and the almost unlimited resources made available for a particular rescue is one product of this failure of anticipation, as is our greater readiness to pay for the protection of known rather than statistical lives (Fried, 1969). We know relatively little about people's ability to anticipate the impact that specified future contingencies will have on their

perceptions and values--nor which perspective, the anticipated or the actual, is a better guide to action (or true preferences). The scanty evidence we have suggests that sometimes at least it is better to go with one's anticipations if derived in a relatively thoughtful setting (Fischhoff, 1978).



#### 4. CHANGING CONFIDENCE IN EXPRESSED VALUES

The power of values comes from their roles as guides to actions, as embodiments of ourselves, and as expressions of our relation to the world (Rokeach, 1973). It may matter greatly what we think their source to be, how strongly we believe in them, and how coherent they seem. Attitudes towards values may, however, be as labile as the values themselves.

##### 4.1 Misattributing the Source

Much of the history of social psychology involves attempts to get people to misattribute the source of their values, by counter-attitudinal role-playing, by exposure to undirected (overheard) conversations, by conformity pressure, or by inducing social comparison processes. These manipulations lead people to adopt as their own, without critical analysis, attitudes that originated with others (McGuire, 1969a). Cognitive psychology offers some new wrinkles in this misattribution process, showing the ease with which presuppositions are absorbed as facts (Loftus, Miller & Burns, 1978), inferences are confused with direct observations (Harris & Monaco, 1978), mere repetition improves the believability of statements (Hasher, Goldstein & Toppino, 1977) and people egocentrically assume that others share their views (Ross, Greene & House, 1977).

##### 4.2 Changing the Apparent Degree of Coherence

People will act and press others to act on values in which they believe most deeply. Depth of belief is a function of source, as mentioned, and of the degree to which such values appear to be in conflict. A superficial analysis may create an illusion of confidence in values simply

because conflicting values are not considered. Incoherence in beliefs is typically apparent only when the elicitor adopts or encourages different perspectives. It is easy to avoid taking that extra step, particularly when the respondent is interested in keeping things simple.

Such collusion toward simplicity is encouraged by one implicit message of many elicitation procedures: "This topic is knowable, analyzable; after one session, we will both know your values." It is magnified by the aura of precision and professionalism fostered by elaborate, numerical response modes. That aura manifests the can-do technological-fix, mastery-of-the-world attitude that characterizes our society (Tribe et al., 1976).

Ellul (1969) has argued that one way to control people's minds is to lead them to believe that they can have an opinion on anything and everything. Those opinions will necessarily be superficial, guaranteeing that people will have elaborated, thoughtful positions on nothing. When we ask or answer questions of value a useful antidote to overconfidence might be to recall the effort invested by Rawls (1971) and his colleagues to produce a reasonably coherent position on just one difficult value issue, social justice.

It is, of course, natural to feel that we are the ranking experts, the final arbiters of our own values. Yet in order to know how good our best assessment of those values is, we must recognize the extent to which they are under the control of factors that we (as scientists as well as individuals) understand rather poorly.



## 5. CHANGING THE RESPONDENT

In most of the effects cited above, the elicitor neither creates nor destroys values, but merely affects the ways in which they are accessed, organized and evaluated. Some effects, however, suggest ways in which the respondent may be irreversibly changed by the questioning procedure, perhaps for the better, perhaps for the worse. These fall into three generic categories. The elicitor may destroy an existing perspective on a value issue, create a perspective where none existed before or deepen the respondent's understanding of the issue at hand or of value questions in general.

### 5.1 Destroying Existing Perspectives

As mentioned, one charge leveled against those who break complex questions of value into more manageable component questions is that their divide-and-conquer strategy destroys the intuitions of their respondent. A generalization of this position might be that any elicitation procedure deviating from the normal way in which judgments are made may erode the respondent's "feel" for the issue at hand. The failure of formal decision-making procedures to attract the loyalty of corporate decision makers has repeatedly been attributed to these individuals' refusal to trade the comforts of their intuitions for the promises of the formal methods (Harrison, 1977).

Other aspects of an elicitation mode may destroy parts of our "natural" perspective on issues (Barnes, 1976). For example, the dyadic nature of the elicitation procedure, with an elicitor who is reluctant to influence the response, may deprive the respondent of the opportunity to invoke social comparison processes (Upshaw, 1974). Discussion with others may be a natural part of the way in which many people formulate their judgments. It may also be an effective procedure, perhaps by recruiting

additional information and externalizing alternative perspectives that are too difficult to carry in one's head simultaneously. In these examples, the elicitation procedure may be seen as destroying respondents' natural perspective by depriving them of tools upon which they are accustomed to rely (Edwards, 1975).

## 5.2 Creating Perspectives

An insidious possibility when posing unfamiliar questions to individuals with poorly formulated opinions is covertly creating a perspective where none existed. One possible process for accomplishing this feat is for the respondent to satisfy the elicitor's hunger for a recordable response by saying whatever comes to mind. Once emitted, this associative response may assume a life of its own. The respondent may subsequently conclude "If that's what I said, then that must be what I meant" (Bem, 1972). As shown in studies of counter-attitudinal role playing (McGuire, 1969a), such positions can show a tenacity which is independent of their source or validity (Ross, 1977). The fact that such spontaneous responses are provided in a formal setting with a relatively esteemed listener may heighten such commitment effects, leading to newly invented but firmly-held values. The very fact that one is out of one's depths in such situations makes it quite difficult to get a critical view on this new perspective.

Elicitation may induce people to think about issues they wish to avoid and would have ignored had they not been "bullied" by the elicitor. In some cases, the elicitor cannot be faulted for forcing people to take their heads out of the sand and face the issues implicit in the decision they must make in any case. The use of decision analysis in medical contexts will create many such situations as physicians and patients are forced



to provide explicit values for pain and death (Bunker, Barnes & Mosteller, 1977). In other cases, the elicitor may be asking respondents to abrogate their own rights by telling, say, how much they would have to be compensated for a particular degradation to their environment without offering the response option "a clean environment is non-negotiable" (Brookshire, Ives & Schulze, 1976). In the extreme, the elicitor may be guilty of "anaesthetizing moral feeling" by inducing the respondent to think about the unthinkable (Tribe, 1972). The mere act of thinking about some issues in "cold, rational" terms may lead to the legitimization of alternatives that should be dismissed outright.

### 5.3 Deepening Perspectives

While the preceding discussion has emphasized unsavory aspects of the impact of the elicitor on the respondent, there obviously are situations in which the only valid elicitation procedure is a reactive one. Consider a national poll of values on issues relevant to nuclear waste disposal, the results of which will be used to guide policy makers. An individual who has no elaborated beliefs may not be responding in his or her best interests by giving the value the question seems to hint at. On the other hand, providing no response effectively constitutes disenfranchisement. An elicitor might reasonably be expected to help in translating the respondent's basic predispositions into codable judgments whose implications and assumptions are well understood. Surely an elicitor does small service to a respondent with incoherent values by asking questions that tap only a part of those values, particularly if that part might be abandoned (or endorsed more heartily) upon further contemplation.

How might the elicitor deepen the respondent's perspective without unduly manipulating it? One reasonably safe way may be to help the respondent

work through the logical implications of various points of view. We presented college students and members of the League of Women Voters with the two tasks in Figure 1. The first asked them to choose between a high-variance and a low-variance option involving the loss of life. The second asked them to choose one of three functions as representing the way in which society should evaluate lives in multi-fatality situations. Its instructions (omitted in Figure 1) provided elaborate rationales for adopting each of the three function forms. The predominant response pattern, chosen by over half of all subjects, was Option A in the civil defense question and Curve 2 in the second task.<sup>6</sup> The former indicates a risk-seeking attitude toward the loss of life. The latter indicates a risk-averse attitude. Confronting subjects with this inconsistency allowed them the opportunity to reflect on its source and on their true values.

Many social decisions require people to determine desirable rates for growth or for discounting future costs and benefits. Wagenaar and Sagaria (1975) have shown that people have very poor intuitions on the cumulative impact of those rates when they are compounded over a period of years. "Neither special instructions about the nature of exponential growth nor daily experience with growth processes enhanced the extrapolations" (p. 416). When issues with compounded rates arise, the elicitor

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<sup>6</sup>These results were not changed appreciably either by changing the degree of elaboration in the rationale given for the three curves, nor by describing civil defense Option B as an action option that reduced the number of casualties (to a small, but definite, number). The civil defense question was posed in nine ways, varying the variance, expectation and probability of loss with Option A (with B always a sure loss of A's expectation). Option B was never chosen by more than 10% of subjects except in the one case where A specified a .99 chance of losing no lives and a .01 chance of losing 100 lives, while B specified the certainty of losing one life.



### TASK 1: CIVIL DEFENSE

A civil defense committee in a large metropolitan area met recently to discuss contingency plans in the event of various emergencies. One emergency under discussion was the following: "A train carrying a very toxic chemical derails and the storage tanks begin to leak. The threat of explosion and lethal discharge of poisonous gas are imminent."

Two possible actions were considered by the committee. These are described below. Read them and indicate your opinion about the relative merits of each.

OPTION A: carries with it a .5 probability of containing the threat without any loss of life and a .5 probability of losing 100 lives. It is like taking the gamble:

.5 lose 0 lives  
.5 lose 100 lives

OPTION B: would produce a certain loss of 50 lives.

lose 50 lives

Which option do you prefer?

\_\_\_\_\_ Option A

\_\_\_\_\_ Option B

### TASK 2: THE IMPACT OF CATASTROPHIC EVENTS

(Two pages of instructions explaining the meaning of the curves preceded the following:)

Please rank the three proposals in order of preference.

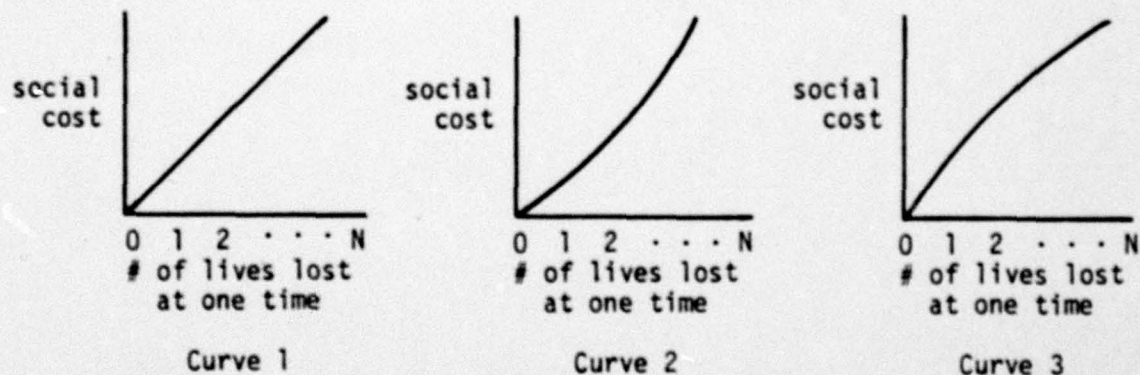


FIGURE 1.  
TWO TASKS WHICH ELICITED INCONSISTENCY  
IN VALUES TOWARDS CATASTROPHIC LOSS OF LIFE

should work through the details of the extrapolations, leaving nothing to the imagination.

A more difficult intervention is to educate respondents about the assumptions upon which their beliefs are contingent. Tougher still is trying to communicate factual information the respondent may not have known or taken into consideration. Kunreuther et al. (1978) found that residents of hazard-prone areas typically underestimate the likely property damage from floods and overestimate that to be expected from earthquakes.

Although there are obvious problems with presenting damage information without unfairly influencing subsequent judgments, it would seem to be a valid input to helping someone evaluate the national flood insurance program. Likewise, just telling people in vivid detail what they may experience in a new job can increase their probability of success and satisfaction (Mitchell & Beach, 1977).



## 6. IMPLICATIONS FOR RESPONDENTS

How do we manage to get by with so much incoherence in our beliefs? Why are we not paralyzed with indecision (to the extent that we are aware of that incoherence) or punished by the consequences of acting on conflicting views?

Paralysis seems averted by the non-intuitive nature of the effects described here and the fact that the world seldom asks us more than one question on a given topic. If we are confronted with inconsistency, it is relatively easy to define our way out of contradictions with specious arguments like "that's different," "things have changed" or "it all depends." There is always some extraneous factor that can be invoked to explain a difference. According to Rokeach (1973), people experience discomfort at inconsistency in their values only when it hints at incompetence or immorality. For better or worse we are usually spared that experience. Table 4 lists some ways one might deal with incoherence.

An intriguing option is just living with incoherence. In the experiment described in Figure 1, half of the subjects had inconsistent preferences. Of those, half decided to deny the incoherence; most of these offered no argument at all, although some tried to demonstrate an underlying coherence by a deeper analysis of their own preferences (typically, by specifying domains in which risk seeking and risk aversion were appropriate). A more satisfying solution is to think one's way through to coherence. Such analytic resolution might involve devising new, conflict-free options or recognizing that the problem at hand is misstated.

We may escape punishment for acting on incoherent values because (a) day-to-day life affords us much opportunity for hands-on experience that obviates the need for analytic judgment; (b) we are proficient at

TABLE 4  
WAYS ONE MAY DEAL WITH INCOHERENCE

NON-RESOLUTION

- Ignore Incoherence
- Deny Incoherence
- Live With Incoherence

EMPIRICAL RESOLUTION

- Collect Evidence (See What You Like)
- Defer to Others
- Like Whatever You Get

ANALYTICAL RESOLUTION

- Create New Alternatives
- Recognize Metaproblem
- Analyze Values More Deeply, Creating or Uncovering Coherence



convincing ourselves that we like what we get (sour grapes, dissonance reduction) and (c) we cannot easily evaluate the outcomes of our decisions (Einhorn & Hogarth, 1978; Fischhoff, in press). Unbeknownst to ourselves, we may be stumbling all the time, tripped up by our own inconsistent values. The chaos reigning in our society's attempts to regulate various technological hazards suggests a lot of counterproductive effort (Kates, 1977; Lowrance, 1976).

## 7. IMPLICATIONS FOR ELICITORS

The purveyors of formal methods of decision making constitute one group of elicitors. Decision analysts (and economists and operations researchers) not only elicit values, but take the numbers they receive seriously in determining decisions that are (purportedly) in the respondents' best interests. The possibility of instability in values is typically treated by sensitivity analysis. The analyst recalculates the decision model while allowing one value at a time to vary over its range. If the final recommendation is insensitive to changes in each value variable, then the instability is considered to be inconsequential.

Although we have only the rudiments of a theory describing the effect of instability on decisions (Fischer, 1976; Fischhoff, in press), some preliminary results suggest that the expected value of continuous decisions (e.g., invest X dollars) is relatively insensitive to shifts in individual values. Thus, one dose of one of the psychophysical effects described in Table 2 might not have too much impact. Unfortunately, little is known about how multiple errors compound within an analysis, nor what is the effect of correlated errors. The use of one perspective throughout an analysis (the usual practice) may produce many shifts of response in the same direction. For example, one might persistently deflate the apparent importance of environmental values or reduce the discriminability of values of all sorts.

Whatever the promise of sensitivity analysis, in some contexts it completely misses the point. Many of the effects described here reflect the introduction of distorted perspectives or newly created, possibly foreign, values into a decision-making process. Blanket invocation of sensitivity analysis will not excuse the imposition of an elicitor's perspective on the respondent. When shifts in perspective lead to



reversals of preference, sensitivity analysis avoids the real issue of which perspective is, in fact, appropriate. Furthermore, the long-range goal of involving people in decision making should be, in part at least, the creation of an informed electorate (or management). That goal will not be served by a procedure that uncritically accepts people's misinformed ideas about their own values.

The resolution of this problem would seem to take one outside the narrow confines of formal decision-making methods. One needs meta-decisions on questions like: Which of several possible inconsistent values is to be accepted? How much education and involvement is needed before people can be treated as though they are expressing their own values?<sup>7</sup> When choosing questions, should axiomatic acceptability be abandoned for the sake of intuitive appeal and ease of response? When parties disagree on an issue, is it fair to adopt a procedure which imposes one perspective so strongly that people are impelled to agree (perhaps with a value that none of them likes)?

A decision analysis that explicitly faced such issues would be much messier than those one usually finds today. However, it would be somewhat better protected from the possibility of the whole enterprise collapsing under the cumulative weight of the issues of value lability which it otherwise ignores or finesses. The "new" decision analysis would probably include an explicit acknowledgement of the artful use of a variety of questions and the gentle development of respondents'

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<sup>7</sup>Perhaps the only way to ensure meaningful citizen participation in public policy issues is to impanel a representative group of citizens, like a jury, to follow an issue through the various stages of debate, deliberation and clarification.

opinions, both of which characterize the actual practice of the "old" decision analysis in the hands of its best practitioners.

All elicitors, be they decision analysts or students of judgment, decision making, choice or attitudes, must decide at some point whether or not they have adequately captured their respondents' values. The usual criteria are reliability and internal consistency (e.g., transitivity). However, where the task is poorly understood because of complexity or unfamiliarity (e.g., preferences for shades of gray), consistency of response within a given experimental mode may tell us little beyond the power of that mode to impose a particular perspective or generate a consistent, coping heuristic.

Insight into people's values may come rather from posing diverse questions in the hopes of eliciting inconsistent responses. If situation-specific cues play a large role in determining what people express as their values, it is the variance in judgment between situations which reveals what those cues may be. Therefore, one would want to start the study of values with methodological pluralism (Royce, 1975) or even Dadaism (Feyerabend, 1975) designed to elicit the broadest range of variation in expressed values. With a large set of possible determinants of value in hand, one can then try to establish their salience, potency and prevalence. This approach has the admirable property of (potentially) turning past morasses into silk purses, for any set of inconsistent results becomes a possible source of systematic variance. Inconsistency in values is treated as a success rather than a failure of measurement, for it indicates contexts defined sharply enough to produce a difference. Indeed, this was the approach adopted by Poulton (1968) in producing his six models for the "new psychophysics."



## 8. CONCLUSION

Expressed values seem to be highly labile. Subtle changes in elicitation mode can have marked effects on what people express as their preferences. Some of these effects are reversible, others not; some deepen the respondent's perspective, others do not; some are induced deliberately, others are not; some are specific to questions of value, others affect judgments of all kinds; some are well documented, others are mere speculation. Confronting these effects is unavoidable if we are to elicit values at all.

To the extent that these effects are real and powerful, they have different implications for different groups of elicitors.

If one is interested in how people express their values in the real world, one question may be enough. That world often asks only one question (e.g., in a ballot measure). A careful analysis of how an issue is posed may allow one to identify that question and accurately predict responses.

If one is interested in how people create, revise and express their opinions, the contrast between different procedures may be a source of insight.

If one is interested in what people really feel about a value issue, there may be no substitute for an interactive, dialectical elicitation procedure, one that acknowledges the elicitor's role in helping the respondent to create and enunciate values. That help would include a conceptual analysis of the problem and of the personal, social, ethical value issues to which the respondent might wish to relate.

The most satisfying way to interact with our respondents and help them make value judgments in their own best interests is to provide them with new analytical tools. Such tools would change respondents by deepening their perspective. In the extreme, they could include relevant instruction in philosophy, economics, sociology, anthropology, etc., as well as training in decision-making methodology.<sup>8</sup> More modestly, one could convey an understanding of the basic models for values (compensatory, disjunctive, etc.), of useful heuristics (and their limitations), of commonly accepted rules of rationality and their rationales, of common pitfalls, and of new concepts encountered in a particular problem. Perhaps the simplest and most effective message of all might be the theme of this paper: consider more than one perspective.

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<sup>8</sup>Rozeboom (1977) has argued that the elicitors themselves should have more of such training.



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Decision making requires two sequential actions: assessing what one wants and then figuring how best to obtain that goal. Typically it is assumed that people know what they want and that, with a little care, those values can be elicited. Furthermore, it is assumed that people's values are sufficiently well developed to be elicited in whatever form is most convenient for the elicitor. Research reviewed here suggests that this may not be the case and that a fundamental change may be called for in the way we study and elicit values. continued--		

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The elicitation procedures used may be a major factor in shaping the values of people who do not hold well-formulated values. An elicitor can induce random error, systematic error or unduly extreme judgments. There may be no substitute for an interactive, dialectical elicitation procedure that acknowledges the elicitor's role in helping to create and enunciate values. Respondents might be provided with analytical tools to deepen their perspective and help them make values judgments in their own best interests. However, there is no guarantee that even the greatest of care will resolve fundamental inconsistencies in values, and it may, at times, be necessary to acknowledge that we do not know what we want and structure our actions accordingly.

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